Update on U. S. Department of Energy Plans
For Radioactive Waste Treatment and Disposal at the Savannah River Site
July, 2004

Note: In this context, "the Council" refers to the South Carolina Governor's Nuclear Advisory Council (NAC).

The Council issued a December, 2002, status report detailing its evaluation of the U. S. Department of Energy's (DOE) plans for accelerating the cleanup of the Savannah River Site (SRS) near Aiken, South Carolina. That report raised concerns that DOE could potentially leave large quantities of radioactive material in South Carolina. In mid 2003, the Chairman appointed a committee of Council members to further review DOE's plans for treating and disposing of radioactive waste removed from high level waste tanks at SRS. The committee, led by Dr. Vince Van Brunt with members Mr. Ben Rusche, Dr. Carolyn Hudson, and Mr. Bill Mottel, has participated in numerous briefings, discussions, and working sessions with the management and staff of DOE-Savannah River, DOE's operating contractor for SRS-Westinghouse Savannah River Company (WSRC), and the South Carolina Department of Health and Environmental Control (SC DHEC) to review these issues. A brief history and revised path forward follows.

In August, 2002, DOE issued its Environmental Management (EM) Performance Management Plan (PMP) which initiated plans for the accelerated cleanup of SRS. A key part of the EM PMP accelerated cleanup initiative was the treatment and disposal of approximately 34 million gallons of salt waste in the high level waste at SRS. The 2002 PMP proposed that as much as two thirds of the salt waste would undergo treatment processes to remove some amount of radioactivity with the residual being disposed of onsite in the Saltstone Facility. The Saltstone Facility is a SC DHEC permitted low level waste disposal facility. The remaining one-third of the salt waste was to be treated with the new process, called the Salt Waste Processing Facility (SWPF), that will replace the failed In Tank Precipitation process.

As a result of the 2002 strategy to accelerate the cleanup of the high level waste and save billions of dollars, a significant quantity, approximately 20 million curies, of radioactive materials would have been disposed of onsite in the Saltstone Facility. DOE's plans maximized the use of the low technology, tailored treatments for the salt waste and would allow for the completion of cleanup activities in 2019 with significant cost savings. Several groups including the SRS Citizen's Advisory Board, SC DHEC, and the Council expressed concern that significant quantities of radioactive material would be left in the State of South Carolina for no discernable benefit and possible liability to the State of South Carolina.

DOE's plans to implement the accelerated cleanup strategy were impacted in 2002 and 2003 by technical difficulties and by their inability to obtain a permit for disposal of the salt waste in the Saltstone Facility from SC DHEC. SC DHEC noted in correspondence to DOE that because of the ongoing litigation regarding DOE's authority to declare high level (HLW) as waste incidental to reprocessing (WIR), it would not be prudent to

consider a permit for the disposal of waste that may not be legal. A WIR determination is required by DOE Order 435.1 prior to the disposal of the salt waste removed from the HLW system. In July 2003, a federal district court judge in Idaho ruled that DOE did not have the authority to make unilateral decisions about incidental waste or to classify waste as incidental for reprocessing.

At a working meeting in the fall of 2003, DOE, WSRC, SC DHEC, and the NAC's committee met to review the issues surrounding the high level waste program. DOE and WSRC presented the technical aspects of the strategy and the impacts of the delays on those plans. The NAC committee and SC DHEC aired their concerns with the existing plans for treating and disposing of the waste. During the meeting, the working group developed and agreed to a common set of goals and values. They included the following:

- Reduce operational risk and the risk of HLW leaks to the environment by removing waste from tanks;
- Remove transuranics from stored waste expeditiously since they impact on the environment most significantly if a leak were to occur;
- Maximize the amount of waste made ready for disposal in a deep geologic repository and make significant effort to ensure that the maximum amount of long lived radionuclides are prepared for disposal in a deep geologic repository;
- Remove as much cesium as practicable from salt waste and dispose in parallel with vitrified sludge;
- Dispose of cesium in HLW as soon as practicable to avoid having cesium only waste when sludge vitrification is complete;
- Limit disposal of radioactive waste onsite at SRS so that residual radioactivity is as low as reasonably achievable, and
- Ensure DOE's strategy and plans are subject to public involvement and acceptance.

With these common goals and values in mind, SRS revamped their salt waste treatment and disposal strategy. Several months later, DOE requested another meeting of the working group. In that meeting, they presented a revised strategy for the treatment and disposal of salt waste that was consistent with the previously identified goals and values yet maintained to the extent possible the accelerated cleanup schedule and corresponding cost savings. From this meeting was born the EM PMP "Modified Strategy".

The modified strategy relies on a combination of existing and new facilities at SRS over the next three to five years to treat the minimum amount of salt waste necessary to ensure the continuation of the highly radioactive sludge waste vitrification operations and to provide space for the initial batches of salt waste to be treated by the SWPF. Most importantly, the SWPF will serve as the centerpiece of the salt treatment strategy. It will be a high capacity, robust facility capable of processing large quantities of salt waste. If implemented in a timely manner, it is reasonable to conclude that this strategy will: 1) minimize the amount of radioactivity disposed in South Carolina, 2) maximize the amount of radioactivity prepared for offsite disposal in a geologic repository, 3) protect the health, safety, and environment of South Carolina's citizens, and 4) allow DOE to

accelerate the cleanup of the high level waste system on approximately the same schedule (2019) with corresponding cost savings.

DOE has indicated in public meetings with the SRS CAB and in presentations to the full Council that they are prepared to execute this modified strategy. See the meeting minutes from the Council's March, 2004 and June, 2004 meetings for details of these discussions. The modified strategy has been included in the draft revised EM PMP that is awaiting approval. In a June 7, 2004, letter to the Manager of DOE-SR, Assistant Secretary for Environmental Management, Jessie Roberson, directed the site to move forward with design activities for SWPF and to resume implementation of the modified strategy. However, it must be noted that Congressional action is required to address both budget issues and the legal aspects of disposing of the treated waste and these issues must be resolved in order for the modified strategy to succeed. Further, DOE must develop and present a regulatory strategy that SC DHEC can accept for the near term processing and disposal of salt waste.

This path forward was developed in workshops in October and November 2003, and is supported by the Peer Review of Salt Waste Processing Technology Readiness and the Defense Nuclear Facilities Safety Board. The Board, as does the NAC, believes that the safety impacts of delaying the radioactive waste disposition activities at SRS are unacceptable. Given the significant safety consequences of delaying radioactive waste dispositions at SRS, it is imperative that DOE execute this program in a timely manner.

In conclusion, the Council believes that the "modified strategy" developed by SRS to address salt waste treatment and disposal activities properly balances accelerated cleanup objectives with the protection of the health, safety, and environment of the citizens of South Carolina. Its timely execution is important to the continued operation of the high level waste vitrification plant which continues to prepare the highly radioactive sludge for offsite disposal. The Council encourages DOE to develop and submit a regulatory strategy to SC DHEC as soon as possible with the expectation that SC DHEC and DOE will work together to achieve a mutually agreeable approach for permitting the treatment and disposal of salt waste at SRS. Finally, the Council encourages South Carolina's Congressional delegation to continue to work to ensure passage of legislation that provides the legal and budgetary framework for the execution of this plan.

Ref: Technical Peer Review Report SWP Facility Technology Readiness
Copyright 2003
October Workshop Notes
November Workshop Notes
March minutes
June 10, 2004, NAC meeting draft minutes and presentations
Roberson memo
Defense Nuclear Facilities Safety Board letter June 18, 2004
2002 Status Report, NAC